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ABSTRACT

A study was conducted to examine the impact of the vocational education related portions of the Comprehensive Employment Training Act (CETA) on occupational segregation by sex. Some of the specific questions considered follow: Is there sex segregation in vocational education programs? Do enrollment patterns show that females are concentrated in "female-stereotyped" vocational training programs? Has the pattern of enrollment changed in recent years? and Have governmental occupational information publications eliminated sex-role stereotyping? Vocational education expenditure and enrollment data for 1972 and 1975 in eight broad program areas were collected from publications of Health, Education and Welfare. Income data was also collected from the U.S. Department of Labor's "Occupational Outlook Handbook." Correlations analyses produced findings that women's progress toward equal opportunity in the job market has been minimal. Federally-sponsored training programs and the federal laws outlawing discrimination on the basis of sex have been particularly disappointing in the changes they have been able to induce. Conclusions were that change will come about, but it will be closely linked to political change, and the key is getting more women into decision-making and administrative positions who have a philosophical and moral commitment to the need for change. (Half of the report is devoted to comparison tables compiled during the study.) (BL)

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THE IMPACT OF FEDERALLY-FUNDED VOCATIONAL EDUCATION PROGRAMS ON WOMEN: PRESENT PATTERNS AND FUTURE IMPLICATIONS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE IMPACT OF FEDERALLY-FUNDED VOCATIONAL EDUCATION PROGRAMS ON WOMEN: PRESENT PATTERNS AND FUTURE IMPLICATIONS

INTRODUCTION

Judging by the tone of the popular media, one would believe that the status of women in the workforce is rapidly improving in the 1970s. However, a closer look at United States Government statistics reveals a decidedly different story--decidedly less pleasant.

Although the labor force participation rate of women has steadily increased during the post-World War II era, (in 1975 women constituted approximately 40 percent of the workforce), the earnings differential between males and females was wider in 1974 than it was nineteen years earlier. In 1974 the median income of men working year-round, full-time was $11,835, 75 percent more than the $6,772 earned by women.[1] There is little doubt that women are, in many cases, still being paid less for doing the same job, however, this is probably not the most important factor in explaining the differences in earnings. Two other factors of significance are, first, women are concentrated in those occupations which are lower in status and in which wages are relatively low.[2] Second, although women are as well educated as their male counterparts in terms of median years of schooling completed, there are differences in the kinds of education, training, and counseling they receive, which directs them into traditional and low-paying jobs.[3]

Sixty-five percent of all women work in the relatively low-paying, low-status job categories of clerical workers (35 percent), service workers

(18 percent), and operatives (12 percent).[4] Even within job categories women tend to be segregated into certain "female" occupations. As an example, women make up two-fifths of all professional and technical workers, but they are most likely to be teachers (women account for 72 percent of all teachers) or health workers (women account for 64 percent of all health workers).[5]

Responding to changes in American life since World War II, the federal government has played an increasing role in the nation's manpower policies.[6] In 1973 the Comprehensive Employment Training Act was passed, which involved the federal government in a variety of new policies and programs, including the vocational education and training of people for jobs. Part of the purpose for the creation of CETA was to assist in ending the persisting evidence of discrimination in employment based on age, sex, race, and national origin.[7]

The recent statistics on women in the workforce brings into question the efficacy of the federal government program for improving employment opportunities for women. The purpose of this study is to examine the impact of the vocational education-related portions of the CETA Program on occupational segregation. Some of the specific questions to be considered will be: Is there sex-segregation in vocational education programs? Do enrollment patterns show that females are concentrated in "female-stereotyped" vocational training programs such as Consumer and Homemaking, Occupational Home Economics, Health, and Office Occupations? Has the pattern of enrollment changed in recent years? Have governmental occupational information publications, particularly those of the federal government, eliminated sex-role stereotyping?

PREVIOUS RESEARCH

An extensive search for relevant literature turned up absolutely no

empirical studies on the impact of the nation's Manpower Programs on women's employment opportunities. Further, in our data collection, we discovered that statistics available for comprehensive analysis were inadequate and misleading, when they were available at all. Although the federal government has spent millions of dollars on program evaluation, little of that money has gone toward research on educational programs. (Job training is an important aspect of the CETA Program.) The Committee on Vocational Education Research and Development of the National Research Council of the National Academy of Sciences reports that:

> Although there are some studies on women in vocational education,... there has been relatively little vocational R & D funding devoted to the needs of women, particularly [shortsighted] since more than half the students in vocational education programs are women. For example, in fiscal 1974 only one out of 93 federally funded and administered Part C projects pertained directly to women. In the same year, no projects specifically on women were funded under Part I or Part D. Furthermore, in 1975 only three of the 50 state departments of education were sponsoring research on the needs of girls and women. [8]

Recognizing these drawbacks to comprehensive research, an effort is nevertheless made to assess the available data to determine the impact of federally-sponsored vocational training programs on women's employment opportunities.

RESEARCH DESIGN

In order to determine if there is sex-segregation in vocational education programs and whether females are concentrated in "female-stereotyped" programs, a comparison is made of the proportion of all females enrolled in each of the broad program areas (Agriculture, Distribution, Health, Consumer and Homemaking, Occupational Home Economics, Office,

Technical, and Trades and Industry). To determine whether these enrollment patterns have changed, data is contrasted for two time points--1972 and 1975.

The proportion of females enrolled in each program area is then compared to assess whether there is sex-segregation in enrollment patterns within each broad program area. A further delineation of enrollment differences by sex within each of the eight broad program areas is then made by examining the proportion of females enrolled in each specific occupational category: (Agriculture--8 occupational categories; Distribution--20; Health--17; Consumer and Homemaking--8; Occupational Home Economics--6; Office--10; Technical--22; and Trade and Industry--45).

The vocational education expenditure efforts of states and their effects on enrollment patterns are determined by using comparison of means and correlational analytic techniques. State effort is defined as the ratio of state/local expenditures for vocational education to federal expenditures for vocational education. This type of analysis helps to determine whether states in which federal aid stimulates further state expenditures are characterized by significantly different vocational education sex enrollment patterns than states in which federal aid is less-stimulative, or substitutive. If no significant differences are found between these two types of states, then it can be concluded that federal aid to vocational education, as currently dispensed, does not have any impact on the sex-enrollment patterns within the states. This would suggest that such federal aid policies are inconsistent with, and ineffective in accomplishing, equal employment opportunities for all persons regardless of sex.

Finally, a content analysis is performed comparing the pictoral representation of males and females in various job classifications as shown in the

Department of Labor's Occupational Outlook Handbook, 1976-77 Edition. This is the primary career informational source published by the federal government and the reference source most available in vocational education guidance counselors' offices. The purpose of such analysis is to determine whether federal government vocational education policies other than fiscal aid policies are directed at eliminating sex-role stereotyping.

The Data

Vocational education expenditure and enrollment data were collected from publications of the U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education, for 1972 and 1975. Data on vocational program enrollment were broken down by sex in only two years, 1972 and 1975. Furthermore, the 1975 data is virtually incomparable with the 1972 data because six states (California, Delaware, Florida, Illinois, Rhode Island, and South Carolina) did not report enrollment by sex in 1975. Thus, it should be kept in mind by the reader that 1975 figures are somewhat deflated and can be used only to make relative comparisons in enrollments among the programs for that year, not comparisons between 1972 and 1975 enrollments.

Income data used to portray the future effects of current vocational educational enrollment patterns on male-female wage differentials were collected from the U.S. Department of Labor's Occupational Outlook Handbook, 1976-77 Edition. Likewise, sex-role stereotyping data were obtained from The Occupational Outlook Handbook.

FINDINGS

Concentration of Females in "Female-Stereotyped" Programs

As the results shown in Table 1 indicate, females are concentrated in

two program areas: Consumer and Homemaking, and Office occupations. Although the figures suggest that this pattern is changing, the decline in the concentration of women in these two program areas from 1972 to 1975 can at best be

Table 1 About Here

labeled "slight." Publications of the Division of Vocational and Technical Education of HEW, however, report these results in a somewhat different light: "A comparison of enrollment by occupational programs shows a decided shift away from sex-role stereotyping."[9] This strongly positive statement would seem to be unwarranted, given the rather minimal shift in statistics.

The significance of the continuation of such enrollment patterns in the future are obvious--as shown by the figures in Table 2. These figures represent a comparison of the entry-level salaries of persons "graduating"

Table 2 About Here

from female-dominated programs (Consumer and Homemaking; Office) and persons "graduating" from male-dominated programs (Agricultural; Technical). Such marked salary and enrollment differentials in conjunction with the increasing tendency of young persons to enter vocational education (as opposed to college) for employment training, add up to mean that vocational education programs will perpetuate, rather than eliminate, male economic dominance in American society.

The data in Table 3 indicate that enrollment in most of the program areas tends to be segregated by sex. The Health, Consumer and Homemaking,

Table 3 About Here

Occupational Home Economics, and Office areas have largely female enrollments, whereas the Agriculture, Technical, and Trades and Industry areas have predominantly male enrollments. Only the Distribution program area can be said

to be integrated with roughtly the same proportions of males and females as there are in the total society.

Although enrollments by gender remain extreme, there have been some changes of a positive nature. The percentage of females in the female-dominated areas has declined and in the male-dominated areas it has increased. There is still a long way to go before these programs can be said to be integrated.

A review of the data in Tables 4 through 11 indicate that within each program area there are also patterns of sex segregation. The Trade and Industry Program is one of the most telling. Although women made up only

Tables 4 through 11 About Here

12.6 percent of the total enrollment in this program in 1975, in the following specific areas their enrollments constituted over 30 percent: Commercial Art Occupation (35.8 percent females); Cosmetology (65.1 percent); Other Personal Services (63.6 percent); Quantity Food Occupation (33.4 percent); and Textile Production and Fabrication (59.6 percent). A brief review of all the occupational endeavors in the eight program areas and their respective female enrollments, suggests a strong influence of sex-role stereotypes.

State Effort: No Significant Relationship to Female Enrollment Patterns (1972 or 1975)

Table 12 shows the results of the comparison of means analysis of female vocational education enrollment patterns in "high effort" and "low effort" states. The figures suggest that there is virtually no difference between

Table 12 About Here

the states, except in effort. Both types of states are characterized by

proportionately higher female enrollments in Consumer and Homemaking, Health, Occupational Home Economics, or Office programs and proportionately higher male enrollments in Agriculture, Distribution, Technical, and Trades and Industry programs. This, then, suggests that there is no real effect of federal aid on enrollment patterns in vocational education programs as administered by the states.

To further test this hypothesis, the statistical relationships between state effort (state-to-federal expenditure ratio) and female enrollment in the eight program areas were examined using simple correlational analysis. The results are shown in Table 13. As is apparent, there is no significant

Table 13 About Here

statistical relationship between variations in state effort and variations in female vocational education enrollment patterns (for all programs) in either 1972 or 1975.

An examination of the relationships by specific program area, however, shows that in 1972, greater state effort was positively associated with increases in female enrollment in Agriculture, Technical, and Trades and Industry programs and with decreases in female enrollment in Office programs. While these are seemingly positive findings, it is important to note that state effort had no significant impact on the most sex-segregated of all programs--Consumer and Homemaking. Greater state effort in 1975 was associated with decreases in female enrollment in Consumer and Homemaking programs, but, unfortunately, also with decreases in Technical program enrollments.

In summary, the results of these cross-sectional correlational analyses seem to indicate that federal government policy offers no explanation for

variations in the relationships between state effort and female enrollment patterns in vocational education programs. Perhaps they are explainable by variations in socioeconomic or governmental conditions at the state level, but that is beyond the scope of this paper.

Changes in State Effort: No Significant Relationship to Changes in Female Enrollment Patterns

The results shown in Table 14 indicate that there are no significant relationships between changes in state effort and changes in female enrollment patterns. This provides the basis for an even stronger condemnation of

Table 14 About Here

federal vocational education aid policies than do the results obtained from the cross-sectional analyses. This finding can essentially be interpreted as meaning that whether changes in federal aid formulas have more stimulative or more substitutive effects on state vocational education expenditures, they do not, in fact, have a significant impact on changes in female enrollment patterns--patterns which have already been shown to be sex-segregated in nature. Thus, naive statements by the Division of Vocational and Technical Education of the Department of Health, Education, and Welfare as to the effect that "things are getting better" (supposedly because of federal policies) are just that--naive.

Occupational Outlook Handbook: A Government Document Guilty of Sex-Role Stereotyping

The Department of Labor publication, Occupational Outlook Handbook, 1976-77 Edition, the primary occupational reference source published by the federal government and used extensively by guidance counselors throughout the nation, was found to be a blatant example of sex-role stereotyping. (In fact, as a textbook, it would have an extremely difficult time passing state textbook review procedures.)

As the figures shown in Table 15 indicate, the pictoral representation of males and females is evidence of sex-role stereotyping. Females are typically projected in lower-status, secretarial, and service occupations; males, on the other hand, are shown in administrative, decision-making, and professional occupations. The results of this content analysis are evidence

Table 15 About Here

that another federal vocational education-related policy (in addition to fiscal aid policy) currently operates to promulgate rather than alleviate sex-role stereotyping--and at that stage in a person's life (the choosing of a career) when such a sexist policy has the greatest impact. This is certainly incongruent with the federal government's publically-stated policy of providing equal employment opportunities for all persons regardless of sex.

SIGNIFICANCE OF THE FINDINGS

It is a recognized fact that education is strongly related to income. If one of the stated goals of American governments is to provide equal opportunities in employment for all persons regardless of sex, then it is imperative that such equality of opportunity begin in one's education and training for employment. If a conscious effort is not made to eliminate sex-role stereotyping in these educational and training experiences, then such stereotyping will continue to persist in the job marketplace and will continue to stimulate wage-differentials that subjugate women to lower levels of income. There is little indication that such an effort has been made.

Although this analysis of the impact of federally-sponsored vocational

training programs on employment patterns of women indicates that there was a slight decrease in occupational segregation by sex, the change is far from dramatic. In fact, the blatant sex-role stereotyping projected in the 1976-77 Occupational Outlook Handbook would suggest that whatever changes have occurred may be more the result of other factors, including raised consciousness on the part of women, than substantive efforts for change within the programs. What it boils down to is that traditional beliefs about "woman's place" in the job market effectively negate the stated intent of the CETA Programs.

The findings of this study fit into the pattern that has been emerging over the last few years--women's progress toward equal opportunity in the job market has been minimal. Federally-sponsored training programs and the Federal Laws outlawing discrimination on the basis of sex have been particularly disappointing in the changes they have been able to induce. Forces maintaining the economic status quo are far more powerful than anyone anticipated a decade or so ago.

Change will come about, there is no question of that, but it will be closely linked to political change. Women have been successful in changing the rhetoric of elected and appointed officials, changing the laws affecting equal opportunity and getting programs developed with, at least, the stated intent of enhancing their opportunities.

Essential as these steps are, they are not enough. The next indispensable step is in getting people into decision-making and administrative positions who have a philosophical and moral commitment plus a gut-level understanding of the need for change. This implies, of course, more women--more involved women.

NOTES

1. U.S. Department of Labor, Employment Standards Administration, Women's Bureau, The Earnings Gap Between Women and Men (Washington, D.C.: U.S. Department of Labor, 1976), p. 1.

2. Ibid., p. 2.

3. Ibid.

4. U.S. Department of Commerce, Bureau of the Census, "A Statistical Protrait of Women in the U.S.," Current Population Reports, Special Studies P-23, No. 58, p. 1; See also U.S. Department of Labor, Employment Standards Administration, Women's Bureau, Women Workers Today, 1976, p. 7.

5. Ibid. For a sensitive and insightful study of the impact of job segregation on women, see Louise Kapp Howe, Pink Collar Workers (New York: G.P. Putnam's Sons, 1977).

6. Eli Ginzberg, "The Building of a National Manpower Policy," in Merle E. Strong, ed., Developing the Nation's Workforce (Washington, D.C.: The American Vocational Association, 1975), pp. 15-26.

7. Garth L. Mangum, Employability, Employment, and Income (Salt Lake City, Utah: Olympus, 1976), p. 14.

8. Committee on Vocational Education Research and Development of the National Research Council, Assessing Vocational Education Research and Development (Washington, D.C.: National Academy of Sciences, 1976), p. 87.

9. U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education, Report on The Comparative Analysis of Vocational Education Enrollment by Sex in Fiscal Years 1972 and 1975, June 17, 1976, p. 1.

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TABLE 1

PROPORTION OF TOTAL FEMALE ENROLLMENT IN VOCATIONAL EDUCATION IN EACH PROGRAM AREA (1972, 1975)

Program Area	% of Total Female Enrollment in Vocational Education 1972	1975
Agriculture	.9%	1.5%
Distribution	4.8	4.6
Health	4.7	5.2
Consumer and Homemaking	51.0	38.8
Occupational Home Economics	3.1	3.3
Office	28.8	24.0
Technical	.6	.5
Trades and Industry	4.0	4.1

NOTE: The 1975 figures do not include data from Delaware, Florida, Illinois, Rhode Island, or South Carolina. These states did not report enrollment by sex in 1975. Figures do not add to 100% because enrollment in special programs is excluded.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Vocational and Technical Education Selected Statistical Tables Fiscal Year 1972. Vocational Education Information Report No. III, June, 1973; and Vocational and Technical Education Selected Statistical Tables Fiscal Year 1975. Vocational Education Information Report No. II. December, 1976.

TABLE 2

A COMPARISON OF THE EXPECTED ANNUAL INCOME UPON COMPLETION OF FEMALE- AND MALE-DOMINATED VOCATIONAL EDUCATION PROGRAMS

Program and Occupation	% of Total Female Enrollment, 1975	Expected Annual Income ($)
FEMALE-DOMINATED PROGRAMS		
Consumer and Homemaking	38.8%	Personal and Family Satisfaction....
Child Development		
Clothing and Textiles		
Consumer Education		No Monetary Value
Family Relations		
Food and Nutrition		
Home Management		
Housing and Home Furnishings		
Office	24.0%	
Accounting and Computing		$8840
Business Data Processing Systems		6240
Filing, Office Machines		5564
Information and Communication		6760
Materials Support, Transportation		8632
Personnel, Training, and Related		9800
Stenographer, Secretary, Related		7032
Supervisory and Administrative Management		15,600
Typing and Related		6344
MALE-DOMINATED PROGRAMS		
Agricultural	1.5%	
Agricultural Production		$12,000
Agricultural Supplies and Services		12,000
Agricultural Mechanics		12,000
Agricultural Products		12,000
Ornamental Horticulture		12,000
Agricultural Resources		12,000
Forestry		9500
Technical		
Aeronautical	0.6%	$8,200-9,800
Architectural		8,200-9,800
Automotive		8,200-9,800
Chemical		8,200-9,800
Civil		8,200-9,800
Electrical		8,200-9,800
Electronics		8,200-9,800
Electromechanical		8,200-9,800
Environmental Control		8,200-9,800
Industrial		8,200-9,800
Instrumentation		8,200-9,800
Mechanical		8,200-9,800
Metallurgical		8,200-9,800
Scientific Data		10,400

TABLE 2 , CONTINUED.

Program and Occupation	% of Total Female Enrollment, 1975	Expected Annual Income ($)
Technical, Continued.	0.6%	
Commercial Pilot		$10,000
Fire and Safety		9,200-11,000
Forestry		8500
Oceanographic		8500
Police Science		7,200-12,000
Air Pollution		8,200-9,800
Water and Waste		8,200-9,800

NOTE: Income figures are for new entrants into the jobs--not experienced personnel.

SOURCE: Constructed from U.S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook, 1976-77 Edition.

TABLE 3

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION WITHIN EACH PROGRAM (1972, 1975)

Program	% Female Enrollment 1972	1975	% Change
All Programs	55.4%	48.3%	-12.8%
Agriculture	5.4	9.2	+41.3
Distribution	45.3	42.8	- 5.5
Health	84.7	71.7	-15.3
Consumer and Homemaking	92.1	81.9	-11.0
Occupational Home Economics	86.1	73.2	-15.0
Office	76.4	69.3	- 9.3
Technical	9.8	10.7	+ 8.4
Trades and Industry	11.7	12.6	+ 7.1

NOTE: Specific program enrollment figures do not include date from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina. These states did not report enrollment by sex in 1975. In order to compare Fiscal Year 1975 with Fiscal Year 1972, enrollments in these six states were excluded for both years.

SOURCE: U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Comparative Analysis of Vocational Education Enrollment by Sex in Fiscal Years 1972 and 1975. June 17, 1976, p. 2.

TABLE 4

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION AGRICULTURAL PROGRAMS, (1972, 1975)

Agricultural Program	% Female Enrollment 1972	1975
Agricultural Production	5.4%	6.2%
Agricultural Supplies/ Services	4.8	8.5
Agricultural Mechanics	1.1	2.0
Agricultural Products	7.8	10.6
Ornamental Horticulture	26.9	24.4
Agricultural Resources	7.6	9.2
Forestry	2.9	6.0
Other	6.6	7.7

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in agricultural programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various agricultural programs. In 1972, these states accounted for 28% of the total female enrollment in agricultural programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, p.12; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, p. 9.

TABLE 5

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION DISTRIBUTION PROGRAMS, (1972, 1975)

Distribution Program	% Female Enrollment 1972	1975
Advertising Services	45.2%	39.2%
Apparel and Accessories	67.0	60.2
Automotive	14.4	12.5
Finance and Credit	42.2	35.0
Floristry	69.1	51.0
Food Distribution	37.5	34.4
Food Services	61.9	50.8
General Merchandise	51.1	36.7
Hardware, Building Materials	22.3	24.0
Home Furnishings	59.9	47.5
Hotel and Lodging	41.1	26.3
Industrial Marketing	29.0	15.6
Insurance	27.0	21.0
International Trade	31.9	28.0
Personal Services	51.4	47.5
Petroleum	4.7	13.3
Real Estate	31.9	18.2
Recreation and Tourism	47.8	23.3
Transportation	33.7	15.6
Other	44.9	40.6

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in distribution programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various distribution programs. In 1972, these states accounted for 14.7 percent of the total female enrollment in distribution programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, pp. 12-13; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, pp. 9-10.

TABLE 6

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION HEALTH PROGRAMS, (1972, 1975)

Health Program	% Female Enrollment 1972	1975
Dental Assistant	93.1%	64.5%
Dental Hygienist (Associate)	96.4	65.3
Dental Lab Technician	41.4	27.5
Medical Laboratory Assisting	77.7	57.5
Other Medical Lab Technology	84.8	61.7
Nurse (Associate Degree)	60.3	63.9
Practical (Vocational) Nurse	94.5	74.5
Nursing Assistant (Aide)	90.5	64.2
Occupational Therapy	80.5	62.1
Physical Therapy	70.4	45.8
Radiologic Technology	61.4	35.1
Environmental Health	33.1	34.2
Mental Health Technology	73.9	53.6
Inhalation Therapy Technology	44.3	32.0
Medical Assistant	92.4	52.7
Health Aide	77.6	67.4
Other	65.1	50.7

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in health programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various health programs. In 1972, these states accounted for 19.3 percent of the total female enrollment in health programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, p. 13; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, pp. 10-11.

TABLE 7

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION CONSUMER AND HOMEMAKING PROGRAMS, (1972, 1975)

Consumer and Homemaking Programs	% Female Enrollment 1972	1975
Child Development	96.0%	71.6%
Clothing and Textiles	98.0	67.1
Consumer Education	79.9	64.3
Family Relations	86.2	62.5
Food and Nutrition	73.9	60.3
Home Management	92.8	68.0
Housing and Home Furnishings	93.2	68.0
Other	93.7	76.3

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in consumer and homemaking programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various consumer and homemaking programs. In 1972, these states accounted for 9.1 percent of the total female enrollment in consumer and homemaking programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973. p. 14; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, p. 11.

TABLE 8

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION OCCUPATIONAL HOME ECONOMICS PROGRAMS (1972, 1975)

Occupational Home Economics Programs	% Female Enrollment 1972	1975
Care and Guidance of Children	92.3%	46.6%
Clothing Management, Production, and Service	96.0	66.5
Food Management, Production, and Service	75.0	44.7
Home Furnishings, Equipment, and Service	87.9	51.3
Institutional and Home Management and Supplies	89.2	45.6
Other	78.0	56.4

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in occupational home economics programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various occupational home economics programs. In 1972, these states accounted for 32.0 percent of the total female enrollment in occupational home economics programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, p. 14; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, p. 11.

TABLE 9

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION OFFICE OCCUPATION PROGRAMS, (1972, 1975)

Office Occupation Program	% Female Enrollment 1972	1975
Accounting and Computing	59.8%	39.4%
Business Data Processing Systems	49.0	30.7
Filing, Office Machines	82.2	49.5
Information and Communication	72.4	24.7
Materials Support, Transportation	51.7	15.9
Personnel, Training, and Related	63.3	22.1
Stenographer, Secretary, Related	47.0	64.5
Supervisory and Administrative Management	27.6	26.1
Typing and Related	79.6	53.2
Other	71.2	51.1

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in office occupation programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various office occupation programs. In 1972, these states accounted for 26.8 percent of the total female enrollment in office occupation programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, pp. 14-15; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, pp. 11-12.

TABLE 10

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION TECHNICAL PROGRAMS
(1972, 1975)

Technical Programs	% Female Enrollment 1972	1975
Aeronautical Technology	14.0%	4.7%
Architectural Technology	8.1	6.4
Automotive Technology	.8	1.1
Chemical Technology	20.2	21.6
Civil Technology	4.0	4.4
Electrical Technology	1.4	2.8
Electronics Technology	2.1	3.2
Electromechanical Technology	1.7	3.8
Environmental Control Technology	4.5	3.9
Industrial Technology	9.8	11.3
Instrumentation Technology	2.6	2.9
Mechanical Technology	3.4	3.3
Metallurgical Technology	1.4	4.6
Scientific Data Technology	31.8	25.8
Commercial Pilot Training	6.6	2.0
Fire and Safety Technology	.9	1.0
Forestry Technology	3.5	4.8
Oceanographic Technology	8.5	15.2
Police Science Technology	9.5	6.2
Air Pollution Technology	5.7	1.3
Water and Waste Technology	13.3	2.5
Other	20.9	22.4

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in technical programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various technical programs. In 1972, these states accounted for 20.4% of the total female enrollment in technical programs.

SOURCES: Calculated from U.S. Department of Health. Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, p. 15; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, p. 12.

TABLE 11

PERCENT FEMALE ENROLLMENT IN VOCATIONAL EDUCATION TRADE AND INDUSTRY PROGRAMS, (1972, 1975)

Trade and Industry Programs	% Female Enrollment 1972	1975
Air Conditioning	3.9%	1.7%
Appliance Repair	2.9	2.7
Body and Fender, Auto	1.9	1.2
Mechanics, Auto	2.3	3.2
Other Automotive	4.1	4.3
Aviation Occupations	6.9	3.3
Blueprint Reading	5.0	6.7
Business Machine Maintenance	4.4	7.5
Commerical Art Occupation	50.1	35.8
Commercial Fishery Occupation	22.0	18.7
Commercial Photography	25.7	11.9
Carpentry	1.5	2.1
Electricity	1.0	1.2
Masonry	.8	1.2
Plumbing and Pipefitting	.1	.7
Other Construction and Maintenance	2.0	2.1
Custodial Services	15.7	8.4
Diesel Mechanic	1.3	1.0
Drafting Occupation	5.4	6.6
Electrical Occupation	1.1	1.6
Electronic Occupation	4.5	3.0
Fabric Maintenance Services	52.9	33.6
Foremanship, Supervisory, and Management Development	18.7	19.1
Graphic Arts Occupation	12.1	12.3
Industrial Atomic Energy	23.6	23.9
Instrument Maintenance and Repair	3.5	8.9
Maritime Occupation	3.0	3.5
Metalworking Occupation	1.1	2.3
Metallurgy Occupation	.8	3.4
Barbering	16.6	16.5
Cosmetology	94.0	65.1
Other Personal Services	79.7	63.6
Plastics Occupation	22.5	13.8
Fireman Training	2.1	1.8
Law Enforcement Training	7.9	6.7
Other Public Services	38.4	24.2
Quantity Food Occupation	37.6	33.4
Refrigeration	7.3	1.4
Small Engine Repair	2.3	1.9
Stationary Energy Sources Occupation	3.7	.7
Textile Production and Fabrication	82.4	59.5
Leather Working	17.2	15.4
Upholstering	46.0	26.9
Woodworking Occupation	6.3	5.1
Other	18.7	21.7

TABLE 11, CONTINUED.

NOTE: The 1975 figures do not include data from California, Delaware, Florida, Illinois, Rhode Island, or South Carolina since these states did not report program enrollment by sex in 1975. The 1975 figures can only be used to make comparisons between the enrollment in trade and industry programs for that year. They cannot be used to compare 1972 and 1975 enrollments in the various trade and industry programs.

SOURCES: Calculated from U.S. Department of Health, Education, and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. I. May, 1973, pp. 16-17; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. I. June, 1976, pp. 13-14.

TABLE 12

PROPORTION OF FEMALE ENROLLMENT IN EACH PROGRAM IN STATES WITH HIGHEST AND LOWEST VOCATIONAL EDUCATION SPENDING EFFORTS, 1975

State	State Effort	Percent Female Enrollment: All Programs	Agricult.	Distrib.	Health	Consum. & Homemkg.	Occ.Home Econo.	Office	Technc.	Trade & Industry
HIGH EFFORT										
Maryland	18.15	63%	26%	49%	81%	79%	80%	78%	27%	17%
New York	15.50	62	22	47	85	82	82	72	6	19
Massachusetts	13.32	55	24	55	87	89	81	75	10	9
Washington	12.00	46	16	26	75	79	78	70	15	11
Texas	11.72	50	4	46	84	85	84	78	21	11
Florida	10.49	—	—	—	—	—	—	—	—	—
Minnesota	10.36	39	15	46	79	77	70	84	8	6
North Carolina	9.12	47	14	50	65	88	94	56	8	18
Wisconsin	8.88	47	10	43	88	87	77	71	11	12
Illinois	8.71	—	—	—	—	—	—	—	—	—
Average	11.83	51%	16%	45%	81%	83%	81%	73%	13%	13%
LOW EFFORT										
Kansas	3.23	53%	9%	50%	91%	84%	89%	81%	9%	14%
Nebraska	3.23	53	8	50	71	87	93	84	11	9
Montana	3.13	46	7	54	96	84	73	90	4	6
Maine	3.09	27	10	35	41	86	47	63	3	3
North Dakota	3.04	49	9	45	96	80	78	84	3	4
Louisiana	2.96	47	3	43	96	93	82	41	5	8
Hawaii	2.88	57	22	44	46	78	66	74	2	6
Oregon	2.72	54	22	47	73	93	80	73	7	15
South Dakota	2.12	56	7	53	94	85	60	86	0	5
Indiana	1.95	51	9	53	33	91	79	77	8	10
Average	2.84	49%	11%	47%	74%	86%	75%	75%	5%	8%

NOTE: State Effort is the ratio of state/local expenditures for vocational education to federal expenditures for vocational education. Florida and Illinois did not report program enrollments by sex in 1975.

SOURCES: Calculated from U.S. Department of Health, Education and Welfare, Division of Vocational and Technical Education. Summary Data Vocational Education Fiscal Year 1972. Vocational Education Information Report No. 1. May, 1973; and Summary Data Vocational Education Fiscal Year 1975. Vocational Education Information Report No. 1. June, 1976.

TABLE 13

RELATIONSHIP BETWEEN STATE EFFORT AND PROPORTION OF FEMALE ENROLLMENT IN VOCATIONAL EDUCATION BY PROGRAM (1972, 1975)

Program	State Effort 1972	State Effort 1975
ALL PROGRAMS	.21	-.10
Agriculture	.45***	.11
Distribution	.01	-.20
Health	-.00	-.06
Consumer and Homemaking	-.06	-.25*
Occupational Home Economics	.04	-.11
Office	-.34**	-.17
Technical	.26*	-.35**
Trades and Industry	.24*	.18

NOTES: State Effort is the ratio of state/local expenditures for vocational education to federal expenditures for vocational education. Greater state effort means that the state government puts in proportionately more dollars for vocational education programs than does the federal government.

Figures are simple correlation coefficients. *** = significant at .001 level; ** = significant at .01 level; * = significant at .05 level.

TABLE 14

RELATIONSHIP BETWEEN CHANGES IN STATE EFFORT AND CHANGES IN PROPORTION OF FEMALE ENROLLMENT IN VOCATIONAL EDUCATION BY PROGRAM (1972, 1975)

Program	Changes in State Effort, 1972-1975
ALL PROGRAMS	-.13
Agriculture	-.08
Distribution	-.19
Health	.03
Consumer and Homemaking	-.05
Occupational Home Economics	-.04
Office	-.04
Technical	-.14
Trades and Industry	-.17

NOTE: State effort is the ratio of state/local expenditures for vocational education to federal expenditures for vocational education. Greater state effort means that the state government puts in proportionately more dollars for vocational education programs than does the federal government.

Figures are simple correlation coefficients.

TABLE 15

CONTENT ANALYSIS OF PICTORAL REPRESENTATION OF OCCUPATIONS BY SEX, OCCUPATIONAL OUTLOOK HANDBOOK, 1976-77 EDITION

Occupational Program	% Males	% Females	Comments
INDUSTRIAL PRODUCTION AND RELATED OCCUPATIONS	86.2%	13.8%	Females pictured in lower status jobs: factory assembler, blue collar worker supervisor, linotype operator, set-up machine worker
OFFICE OCCUPATIONS	50.0	50.0	
Clerical	27.8	72.2	Females shown in typist, stenographer, file clerk jobs. Males pictured as statistical, shipping and receiving, postal, hotel, and stock clerks
Computer	50.0	50.0	Females shown in lower-status operators jobs. Males shown as programmers and systems analysts
Banking	50.0	50.0	Females shown as clerks, tellers. Males shown as bank officers.
Insurance	80.0	20.0	No comment needed
Administrative	64.3	35.7	Females shown as layout worker for dept. store newspaper ad, linen buyer, and college student personnel workers. Males shown as city manager, credit manager, hotel manager, lawyer, purchasing agent and urban planner.
SERVICE OCCUPATIONS	62.5	37.5	
Cleaning and Related	66.4	33.3	Females shown in domestic cleaning
Food Service	66.4	33.3	Females shown as waitress, food counter worker. Males shown as bartender, meat cutter, etc.
Personal Service	50.0	50.0	Both females shown as cosmotologists. Males shown as barber and bell hop captain
Private Household	0	100.0	Black female shown as a cook.
Protective and Related Services	71.4	28.6	No comment needed

TABLE 15, CONTINUED

Occupational Program	% Males	% Females	Comments
EDUCATION OCCUPATIONS			
Elementary and Public School Teachers	0	100.0%	No comment needed
College Professors	100.0%	0	"
SALES OCCUPATIONS	72.7	27.3	Females shown as model, carpet salesperson. Males shown as automotive, insurance, real estate, securities salespersons
CONSTRUCTION OCCUPATIONS	92.6	7.4	No comment needed
TRANSPORTATION ACTIVITIES OCCUPATIONS	70.0	30.0	
Airlines	81.8	18.2	Females shown as airline hostesses, flight reservationists. Males shown as air traffic controllers, airplane mechanics, pilots
Merchant Marines	100.0	0	No comment needed
Railroads	83.3	16.7	"
Driving Occupations	50.0	50.0	Fair representation
SCIENTIFIC AND TECHNICAL OCCUPATIONS	92.9	7.1	Females shown only as life scientist, physical scientist, and statistician. No females shown as conservationists, engineers, environmentalists, broadcast technicians, drafters, or surveyors
MECHANICS AND REPAIRS	83.3	16.7	No comment needed
HEALTH OCCUPATIONS	36.4	63.6	Males shown as dentists, optometrists, physicians. Females shown as dental assistants, medical technologists, nurses, and therapists
SOCIAL SCIENTISTS	50.0	50.0	Fair representation

TABLE 15, CONTINUED

Occupational Program	% Males	% Females	Comments
SOCIAL SERVICE OCCUPATIONS	75.0%	25.0%	Males and females shown fairly equally, except for clergy where no females are shown
ART, DESIGN, AND COMMUNICATIONS RELATED OCCUPATIONS	61.1	38.9	Very equal treatment in art; In design, males are shown as architests, display workers, industrial designers, landscapers, photographers. Females shown as commercial artists, floral arrangers, and interior designers--furniture; In communications, males shown as interpreters, television announcers, and technical writers. Female shown as newspaper reporter.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, 1976-77 Edition (Washington, D.C.: Government Printing Office, 1976).